ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025:2006 AND EN 15804:2012+A2:2019/AC:2021

AIRFLEX 30, AIRFLEX 15, AIRFLEX MAX

SOPREMA NV

EPD of multiple products, based on a representative product

Programme: The international EPD® system, www.environdec.com
Programme operator: EPD International AB
EPD registration number: S-P-10379
Publication date: 2023-08-23
Valid until: 2028-08-21
Geographical scope: Europe

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	SOPREMA NV
Address	Bouwelven 5, 2280 Grobbendonk, Belgium
Contact details	info@soprema.be
Website	www.soprema.com

PRODUCT IDENTIFICATION

Product name	Airflex
Additional label(s)	Airflex 30, Airflex 15, Airflex Max
Product number / reference	-
Place(s) of production	Dagneux, France
CPC code	5465 Insulation services

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

EPD INFORMATION

EPD program operator	The International EPD System
EPD standards	This EPD is in accordance with EN 15804+A2/AC and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the Int´l EPD System PCR 2019:14 Construction products, version 1.3.1 (08.07.2023) is used. c-PCR 005 Thermal Insulation
EPD author	Silvia Vilčeková, Salvis, s.r.o.
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	2023-08-21
EPD verifier	Elisabet Amat
EPD number	S-P-10379
ECO Platform nr.	-
Publishing date	2023-08-23
EPD valid until	2028-08-21

PRODUCT INFORMATION

PRODUCT DESCRIPTION

AIRFLEX is a thin, non-vapour permeable, thermo-reflective insulation consisting of 2 fireproof bubble films with aluminium foil facings and a fireproof foam. It is available in roll form. This product has a simplified system for joining the strips (integrated adhesive on the edge of the aluminium film).

Airflex

There is a gap of 5 cm between the aluminium with bubbles and green foam + other aluminium with bubbles. Airflex come is two sizes 1.2m x 25m (Airflex 30) and 1.2m x 12.5m (Airflex 15).

Airflex Max

Two aluminium films with bubbles are aligned with green foam on left and right side.

Raw materials used are the same for Airflex and Airflex Max.

PRODUCT APPLICATION

AIRFLEX is intended to be used in construction system as an additional thermal insulation. It contributes to an increase in the thermal resistance of a thermal system in the following areas of application:

Application for walls

- Vertical walls in timber frame constructions,
- Vertical masonry walls with fixation of product on timber frame constructions or similar structures,

Application for roofs

- Pitched roof, under rafters with additional insulation over,
- Ceilings under attics under joists or timbers.

Application for ceilings / floors

- Low-floor constructions
- Intermediate ceilings.

The product is always applied on the warm side of a construction in order to avoid any condensation risk, with an additional thermal insulation product.

The thermal insulation product shall only be installed in structures where it is protected from rain, weathering and moisture.

The product is installed stretched, for example fastened on rafters, cleats or battens, by leaving possibly on both sides of the product one or two air spaces.

TECHNICAL SPECIFICATIONS

Further information can be found at *www.soprema.dk, www.soprema.se or www.soprema.com.*

PRODUCT STANDARDS

CE marking according to ETA-18/0330

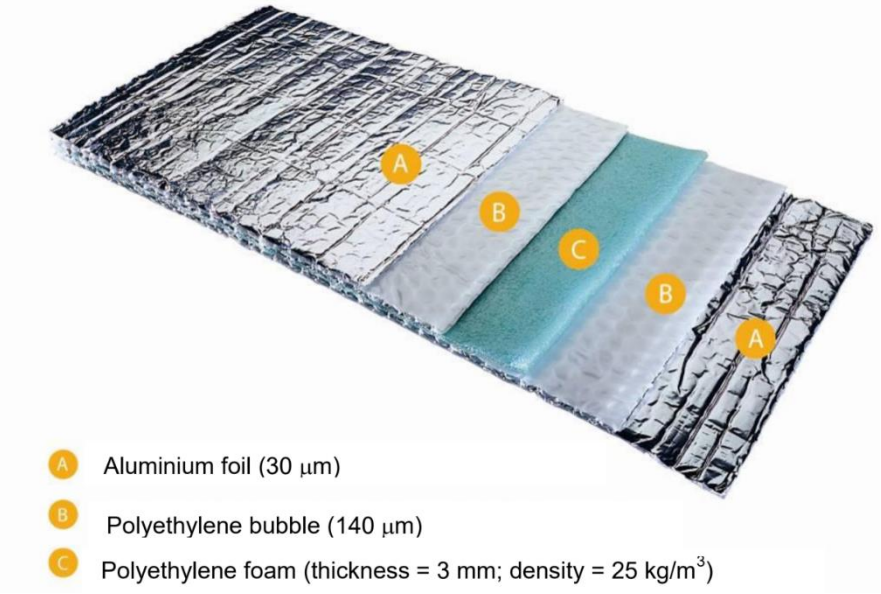
PHYSICAL PROPERTIES OF THE PRODUCT

The declared value of thermal resistance is RD= 0,29 m².K/W.

Composition	Standard	Unit	Value	Exp. of results
Length	EN 822	m	25 or 12.5	VDF (0%,
Width	EN 822	m	1.2	VDF
Thickness	EN 823	mm	10.1	VDF
Mass per unit surface area	EN 1602	g/m²	557	VDF
Declared core Thermal resistance	EN 16012:201	m²K/W	0.25	-
Declared emissivity	EN	-	0:05	-
Reaction to fire (Euroclass)	EN 13501-	-	B-s1, d0	-
Resistance to water vapor (Sd parameter)	EN 12572 condition C	m	304	-

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at *www.soprema.dk* , *www.soprema.se* *or* *www.soprema.com*.



PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
PE foam core	0.074	30	-
Adhesive	0.003	0	-
Aluminium	0.219	0	-
PE film	0.293	0	-
LDPE (plastic hood)	0.005	50	-
Paper	0.001	0	0.1% 0.0004 kg C/kg
LDPE (wrap)	0.010	0	-
Wooden pallets	0.142		19.8% 0.053 kg C/kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The main raw materials for the production of the thermal insulation are polyethylene foam and film (62.4%), aluminium film (37.1%) and adhesive (0.5%). The finished packaged product is stored and transported on wooden pallets.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to PCR. Average distance of transportation from production plant to building site are assumed as 1434 km and 245 km while the transportation methods are assumed to be lorry with load capacity of >32 ton and 16-32 ton, respectively. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are taken into account. Transportation does not cause losses as product are packaged properly.

The impacts of product installation are assumed zero, since the consumption of energy and natural resources for the assembling is negligible. Wooden pallets used for transportation of products to client is accounted for in A5. It is assumed that the pallets are incinerated at the nearest municipal incineration plant for energy recovery. The distance is assumed as 30 km and the transportation method assumed to be lorry.

PRODUCT USE AND MAINTENANCE (B1-B7)

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The impacts of the disassembly stage are assumed zero, since the consumption of energy and natural resources for disassembling the end-of-life product is negligible.

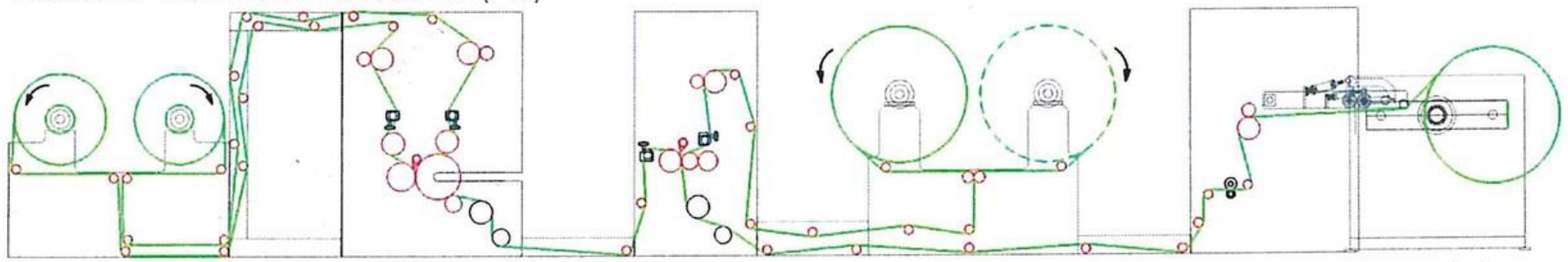
Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry which is the most common.

The entire amount of waste is deposited in a landfill.

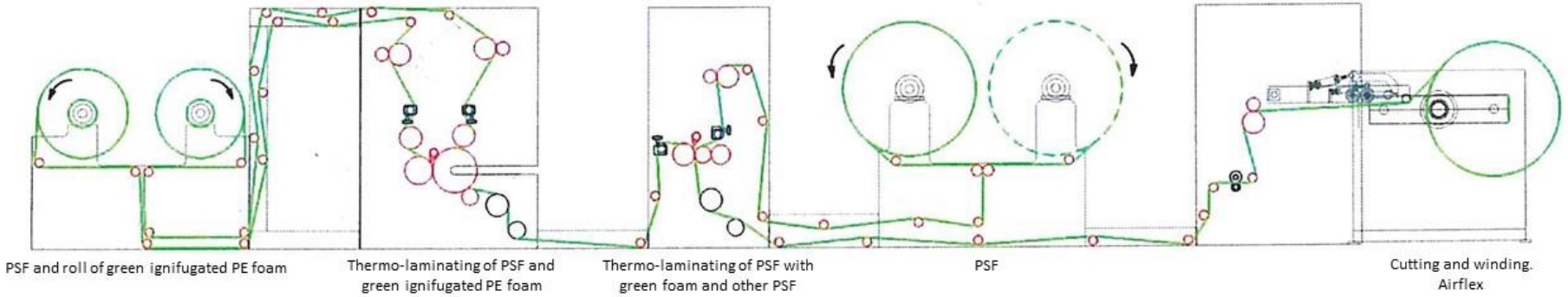
Module D considers the benefits and loads of recycling and energy recovery (in this case only related to packaging end of life).

MANUFACTURING PROCESS

Process for Aluminium PE bubble foil (PSF)



Process for Airflex



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2022

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 m2 of additional thermal insulation with thickness = 10 mm and R_D= 0.29 m².K/W
Mass per declared unit	0.589 kg
Functional unit	-
Reference service life	25

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.008
Biogenic carbon content in packaging, kg C	0.053

SYSTEM BOUNDARY

This EPD covers the cradle to gate with options scope with the following modules; A1 (Raw material supply), A2 (Transport), A3 (Manufacturing), A4 (Transport), A5 (Assembly) and C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Geography, by two-letter ISO country code or regions. The International EPD System only.																		
EU	EU	FR	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	EU		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019/AC:2021 and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.
Losses are considered negligible because they account for less than 1%.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 m2 of the product which is used within this study are calculated by considering the total product weight per annual production. The product output is fixed to 1 m2 and the corresponding amount of product is used in the calculations.
In the production plant, several kinds of products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the produced product output fixed to 1 m2 and the corresponding amount of product is used in the calculations.

Allocation used in Ecoinvent 3.8 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 -standard.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. All estimations and assumptions are given below.
Module A1: Within the product stage accurate data has been used, with the exception of recycled LDPE due to its absence in the database. In this case, it was modelled as close to reality as possible using proxy, representative datapoint.
Module A3: The energy considered in the analysis was determined based on machine powers, operating hours and the quantity of the products produced.
Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality it may vary but as the role of transportation emission in total results is small and so the variety in load assumed to be negligible. Empty returns are taken into account.
Module A4: Transportation doesn't cause losses as products are packaged properly. Also, volume capacity utilisation factor is assumed to be 1 for the nested packaged products. Additionally, transportation distances and vehicle types are assumed according to the delivery in the last year.
Module A5: Energy consumption and used ancillary materials during installation are negligible, and can be assumed as zero. It is assumed that wood pallets are incinerated at the nearest municipal incineration plant for energy recovery. LDPE wrap and paper is recycled. The distance is assumed as 30 km and the transportation method assumed to be lorry.
Module C1: The impacts of the disassembly stage are assumed zero, since the consumption of energy and natural resources for disassembling the end-of-life product is negligible.
Module C2: Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry which is the most common.
Module C3, C4, D: According to the manufacturer's information, 100% of the waste is taken to landfill for final disposal. Module D considers the benefits of recycling which replaces electricity.

The allocations in the Ecoinvent 3.8 datasets used in this study follow the Ecoinvent system model 'Allocation, cut-off, EN15804'.

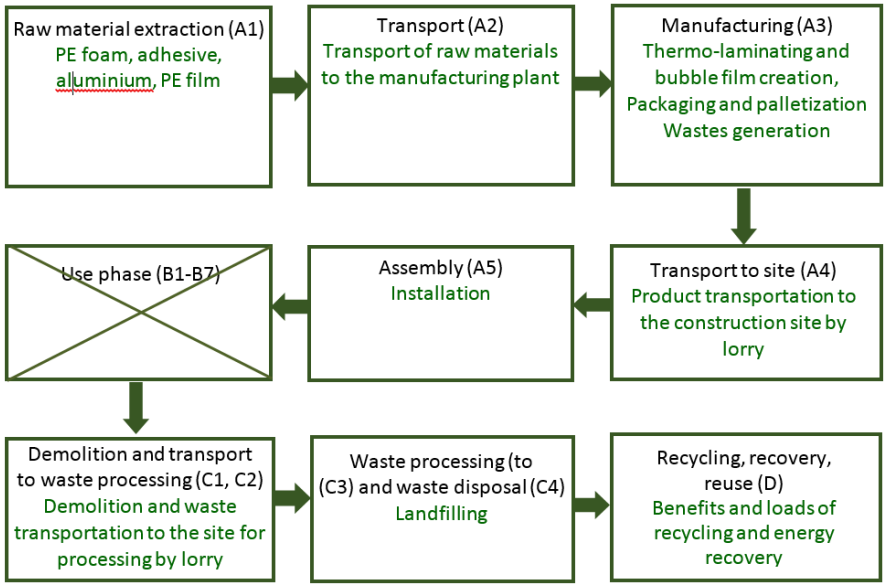
AVERAGES AND VARIABILITY

The results represent impacts for three products with the same inputs. Averages and variability are not applicable.

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	>98%
Variation in GWP-GHG between products	-
Variation in GWP-GHG between sites	-



Process diagram

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	4,63E0	2,35E-1	3,59E-3	MND	MND	MND	MND	MND	MND	MND	0E0	4,8E-3	0E0	2,31E-2	-2,75E-1
GWP – fossil	kg CO_2e	4,62E0	2,37E-1	3,59E-3	MND	MND	MND	MND	MND	MND	MND	0E0	4,8E-3	0E0	2,3E-2	-1,07E-1
GWP – biogenic	kg CO_2e	6,27E-4	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	8,98E-5	-1,68E-1
GWP – LULUC	kg CO_2e	9,03E-3	8,37E-5	3,65E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1,92E-6	0E0	2,57E-5	9,11E-6
Ozone depletion pot.	kg CFC_{-11}e	1,76E-7	5,76E-8	2,36E-10	MND	MND	MND	MND	MND	MND	MND	0E0	1,11E-9	0E0	2,51E-9	-1,86E-8
Acidification potential	mol H^+e	3,19E-2	7,38E-4	1,03E-5	MND	MND	MND	MND	MND	MND	MND	0E0	1,36E-5	0E0	1,53E-4	-8,9E-5
EP-freshwater	kg Pe	2,49E-4	1,85E-6	1,29E-7	MND	MND	MND	MND	MND	MND	MND	0E0	3,43E-8	0E0	7,53E-7	-4,8E-8
EP-marine	kg Ne	5,17E-3	1,59E-4	2,05E-6	MND	MND	MND	MND	MND	MND	MND	0E0	2,72E-6	0E0	3,65E-5	-2,25E-5
EP-terrestrial	mol Ne	5,95E-2	1,77E-3	2,22E-5	MND	MND	MND	MND	MND	MND	MND	0E0	3,02E-5	0E0	4,07E-4	-2,47E-4
POCP ("smog")[2)]	kg NMVOCe	1,86E-2	6,92E-4	6,88E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1,16E-5	0E0	1,21E-4	-9,43E-5
ADP-minerals & metals[3)]	kg Sbe	6,28E-4	2,71E-6	1,68E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,74E-8	0E0	5,4E-8	-2,29E-8
ADP-fossil resources	MJ	6,53E1	3,75E0	3,54E-2	MND	MND	MND	MND	MND	MND	MND	0E0	7,14E-2	0E0	3,24E-1	-1,72E0
Water use[4)]	m^3e depr.	2,29E0	1,54E-2	8,42E-4	MND	MND	MND	MND	MND	MND	MND	0E0	3,34E-4	0E0	4,23E-3	1,31E-3

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[7)]	MJ	5,59E0	4,93E-2	4,32E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,04E-3	0E0	2,11E-2	-9,85E-3
Renew. PER as material	MJ	1,32E0	0E0	-1,86E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	1,97E-2
Total use of renew. PER	MJ	6,92E0	4,93E-2	-1,86E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,04E-3	0E0	2,11E-2	9,88E-3
Non-re. PER as energy	MJ	5,75E1	3,75E0	3,54E-2	MND	MND	MND	MND	MND	MND	MND	0E0	7,14E-2	0E0	3,24E-1	-1,72E0
Non-re. PER as material	MJ	1,62E1	0E0	-5,6E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	4,4E-1
Total use of non-re. PER	MJ	7,37E1	3,75E0	-5,25E-1	MND	MND	MND	MND	MND	MND	MND	0E0	7,14E-2	0E0	3,24E-1	-1,28E0
Secondary materials	kg	4,32E-2	5,49E-4	5,02E-5	MND	MND	MND	MND	MND	MND	MND	0E0	2,43E-5	0E0	7,98E-5	6,89E-4
Renew. secondary fuels	MJ	5,21E-2	5,16E-6	3,68E-7	MND	MND	MND	MND	MND	MND	MND	0E0	2,68E-7	0E0	5,11E-6	-1,81E-6
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	1,77E-1	6,23E-4	2,44E-5	MND	MND	MND	MND	MND	MND	MND	0E0	9,1E-6	0E0	2,5E-4	-1,78E-4

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6,76E-1	3,88E-3	2,22E-4	MND	MND	MND	MND	MND	MND	MND	0E0	8,12E-5	0E0	0E0	-4,4E-4
Non-hazardous waste	kg	7,68E0	2,23E-1	6,56E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,44E-3	0E0	5,89E-1	1,15E-1
Radioactive waste	kg	2,32E-4	2,58E-5	2,36E-7	MND	MND	MND	MND	MND	MND	MND	0E0	4,91E-7	0E0	0E0	-1,13E-6

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	8,3E-3	0E0	1,28E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for energy rec	kg	0E0	0E0	8,52E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	3,29E0	1,83E0	5,71E-1	MND	MND	MND	MND	4,73E0	MND	MND	0E0	5,47E-2	1,79E1	7,54E-1	2,15E0

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, France, residual mix
Electricity CO_2e / kWh	0.1
District heating data source and quality	-
District heating CO_2e / kWh	-

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO_2e emissions, kg CO_2e / tkm	0.0863
Average transport distance, km	1434 (leg 1) 245 (leg 2)
Capacity utilization (including empty return) %	64
Bulk density of transported products	-
Volume capacity utilization factor	1

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	0.5892
Disposal (total) – kg for final deposition	0.5892
Scenario assumptions e.g. transportation	End-of-life product is transported 50 km with an average lorry.

BIBLIOGRAPHY

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ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

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EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

EN 16783:2017 Thermal insulation products - Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations

Int´l EPD System PCR 2019:14 Construction products, version 1.3.1 (08.07.2023)

EPD International (2021). General Programme Instructions of the international EPD® system. Version 4.0. www.environdec.com.

Airflex LCA background report 24.07.2023

ABOUT THE MANUFACTURER

SOPREMA is firmly established as a global leader in insulation offering high quality products and technical expertise through our range of solutions, from XPS, PIR and recycled cotton insulation through to our high-performance natural wood fibre Pavatex insulation and acoustic soundproofing products.
With a rich history spanning over a century, SOPREMA has consistently pushed the boundaries of innovation to deliver cutting-edge solutions. Our commitment to sustainability is evident through the incorporation of recycled materials and our dedication to developing environmentally friendly products.

Manufacturer	SOPREMA NV
EPD author	Silvia Vilčeková
EPD verifier	Elisabet Amat
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.8 (Allocation, cut-off, EN15804) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Construction products

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? Read more online.

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Elisabet Amat
EPD verification started on	2023.07.27
EPD verification completed on	2023.08.21
Supply-chain specific data %	>98%
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Silvia Vilčeková
EPD Generator module	Construction products
Independent software verifier	Ugo Pretato, Studio Fieschi & soci
Software verification date	2023-06-22

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019/AC:2021.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Signature

VERIFICATION AND REGISTRATION (INTERNATIONAL EPD SYSTEM)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.3.1
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Third party verifier	Elisabet Amat, GREENIZE
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	☐ yes ☑ no

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ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	4,46E0	2,35E-1	3,55E-3	MND	MND	MND	MND	MND	MND	MND	0E0	4,76E-3	0E0	2,23E-2	-1,05E-1
Ozone depletion Pot.	kg $CFC_{-11}e$	1,49E-7	4,57E-8	1,93E-10	MND	MND	MND	MND	MND	MND	MND	0E0	8,81E-10	0E0	2,01E-9	-1,64E-8
Acidification	kg SO_2e	2,65E-2	5,47E-4	8,41E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1,12E-5	0E0	1,22E-4	-7,11E-5
Eutrophication	kg PO_4^3e	1,01E-2	1,14E-4	1,05E-5	MND	MND	MND	MND	MND	MND	MND	0E0	2,41E-6	0E0	3,6E-5	-5,97E-7
POCP (“smog”)	kg C_2H_4e	1,7E-3	2,86E-5	4,73E-7	MND	MND	MND	MND	MND	MND	MND	0E0	5,65E-7	0E0	8,5E-6	-6,88E-6
ADP-elements	kg Sbe	6,29E-4	2,71E-6	1,67E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,7E-8	0E0	5,07E-8	-2,34E-8
ADP-fossil	MJ	7,26E1	3,75E0	3,53E-2	MND	MND	MND	MND	MND	MND	MND	0E0	7,14E-2	0E0	3,24E-1	-1,72E0

ANNEX 2: LIFE-CYCLE ASSESSMENT RESULT VISUALIZATION